

REMARKS

U.S. Patent No. 5,900,747 to Brauns is equivalent to the German patent discussed as prior art on page 2 of the translation of the specification.

The phase detector of Brauns includes diodes arranged in series and a circuit imbalance is eliminated by way of a variable resistor connected in parallel with the pair of diodes. As discussed in col. 3, lines 3-5 of Brauns, the variable resistor operates to make the voltages on the diodes symmetric. It was found that although this technique was successful at balancing the voltages on the diodes at one temperature, it was not effective over a large temperature range, as the output signal would exhibit a temperature-dependent drift.

Thus, it is only with hindsight that it appears obvious to include the adjustable reactances as defined in claim 4. When faced with the problem of making a phase detector that could be used over a large temperature range, the skilled man would have no motivation to modify the circuit of Brauns as it was already adjustable by way of the variable resistor (R2 in Brauns) and this was found to be ineffective at compensating for temperature. Thus, there is no expectation of success that by making more circuit components adjustable a temperature resilient phase detector could be constructed, as the already adjustable circuit is ineffective. Further, there is no suggestion in Brauns that such a modification would be successful.

Even if the skilled person did attempt to modify the circuit of Brauns to make it more accurate over large temperature ranges, it would clearly not be obvious to modify the circuit to the extent required by claim 4. Thus, even though the skilled person may know that using components having adjustable reactances (or any other electrical phenomenon) can provide more control, as suggested by the Examiner, an inventive step is still required to select which components to make

adjustable, whether the reactance, impedance, resistance or other measure should be made adjustable, to determine whether other components of the circuit require replacing or modifying and ensuring that despite the substantial modification to the circuit it will still perform over the required frequency ranges. Thus, applicant submits that the Examiner is over-simplifying the present invention.

Further, Brauns, even when combined with the knowledge of the skilled artisan, does not disclose or suggest all the limitations of claim 4, as placing the adjustable reactances between the diodes and the repeating coil is not disclosed, nor suggested.

Finally, the Examiner has stated that the previous amendment to claim 4 to introduce the requirement "... in order to minimize variations in the output signal during changes in the ambient temperature" has no patentable weight. Thus, claim 4 has been amended so that it does have patentable weight.

More specifically, claim 4 now recites that the output signal has a temperature-dependent drift over the temperature range, and that the adjustable reactances are operative to minimize this drift. Support for this feature can be found, for example, at page 2, the first full paragraph of the translation of the specification.

Allowance of claim 4 and its dependent claims 5-12 is respectfully requested.

Petition is hereby made for a one-month extension of the period to respond to the outstanding Official Action to January 20, 2006. A check in the amount of \$120.00, as the Petition fee, is enclosed herewith. If there are any additional charges, or any overpayment, in connection with the filing of the amendment, the Commissioner is hereby authorized to charge any such deficiency, or credit any such overpayment, to Deposit Account No. 11-1145.

Wherefore, a favorable action is earnestly solicited.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Alan Israel', is positioned above a horizontal line.

Alan Israel

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